Attorney Docket: 381NT/42535D2
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	TAKESHI FUJITA ET AL.		
Serial No.:	09/874,308	Group Art Unit:	1634
Filed:	JUNE 6, 2001	Examiner:	LU, FRANK WEI MIN
Title:	DNA ANALYZING METHOD AND DEVICE THEREFOR		

AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

The following amendments and remarks are submitted in response to the Office Action dated September 30, 2002. A marked-up copy of the amendments is attached, with deletions shown by brackets and additions indicated by underlining.

IN THE CLAIMS:

Please amend claims 50-52, and 59 as follows:

50. (Amended) A DNA analyzing method comprising:

preparing a sample single-stranded DNA fragment from a sample double-stranded DNA fragment in a sample solution,

intercalating an intercalater capable of emitting fluorescence of a given wavelength upon receiving an excitation beam of another given wavelength when it is intercalated with nucleotide bases paired from conformation of said single-stranded DNA fragment in said sample solution, wherein a wavelength of the

fluorescence emitted from a complex of the intercalater and the sample single-stranded DNA fragment is different from the wavelength emitted from the intercalater per se,

irradiating the excitation beam of the given wavelength onto the complex of the intercalater and the sample single-stranded DNA fragment,

denaturing the conformation of the sample single-stranded DNA fragment in the sample solution under a given denaturing condition while irradiating the excitation beam,

detecting the change in an intensity of the fluorescence of a preset wavelength due to the denaturation of the sample single-stranded DNA fragment,

measuring a melting curve of the conformation of the sample single-stranded DNA fragment to derive melting curve data representing a relation between the given denaturing condition and an obtained denaturing result, and

comparing the measured melting curve data of the sample single-stranded DNA fragment with known melting curve data preliminarily prepared using single-stranded DNA fragments of a known sequence for obtaining sequence information of the sample single-stranded DNA fragment and for analyzing for a DNA polymorphism including a single-base substitution in the sample single-stranded DNA fragment.

51. (Amended) The DNA analyzing method of claim 50, wherein the comparison of the measured melting curve data of the sample single-stranded DNA fragment with the known melting curve data comprises:

comparing the measured melting curve data of the sample single-stranded DNA fragment with a data set of known melting curves or with a data set of curves prepared by linear combination of a plurality of known curve data sets, and

determining that a data set of known melting curve with the least statistical error compared to the measured melting curve data or a linear combination of data sets with the least statistical error compared to the measured melting curve data represents sequence information of the sample single-stranded DNA fragment.

52. (Amended) The DNA analyzing method of claim 50, wherein the comparison of the measured melting curve data of the sample single-stranded DNA fragment with the known melting curve data comprises:

calculating a statistical error between the measured melting curve data and a data set of known melting curves or a data set of curves prepared by linear combination of a plurality of known melting curve data sets,

selecting a single curve data with the least statistical error compared to the measured melting curve data for carrying out the calculation and selection over a remaining data set of known melting curves or a data set of curves prepared by linear combination of a plurality of known melting curves, and

providing curve data sets in order of increasing statistical error compared to the measured melting curve data as sequence information of the measured sample single-stranded DNA fragment.

59. (Amended) The DNA analyzing method according to claim 50,

wherein the comparison of the measured melting curve data of the sample single-stranded DNA fragment with the known melting curve data comprises:

comparing the measured melting curve data of the sample single-stranded DNA fragment with a linear combination of known melting curve data, and

defining the sequence information of the sample single-stranded DNA fragment as a known melting curve data set with the least statistical error compared to the measured melting curve data.

Please add new claim 62 as follows:

62. (New) The DNA analyzing method according to claim 59,

wherein said comparing the measured melting curve data of the sample single-stranded DNA fragment with a linear combination of known melting curve data step comprises comparing the measured melting curve data of the sample single-stranded DNA fragment with a linear combination of Gaussian functions of known melting curve data.

REMARKS

Claims 50-59 and new claim 62 are pending. Claims 50-59 were rejected under 35 U.S.C. § 112, ¶ 2, for indefiniteness. By way of present amendment, applicants have presented amendments to the claims to remove any potentially indefinite language. Applicants have also added new claim 62, support for this claim can be found in the specification at page 18. No new matter is added hereby.

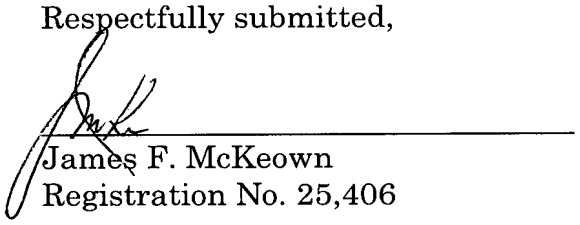
In view of the present amendments, applicants believe that the pending claims are now in condition for allowance. Prompt and favorable action on the claims is respectfully requested.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #381NT/42535D2).

Respectfully submitted,

December 30, 2002



James F. McKeown
Registration No. 25,406

CROWELL & MORING, LLP
P.O. Box 14300
Washington, DC 20044-4300
Telephone No.: (202) 624-2500
Facsimile No.: (202) 628-8844